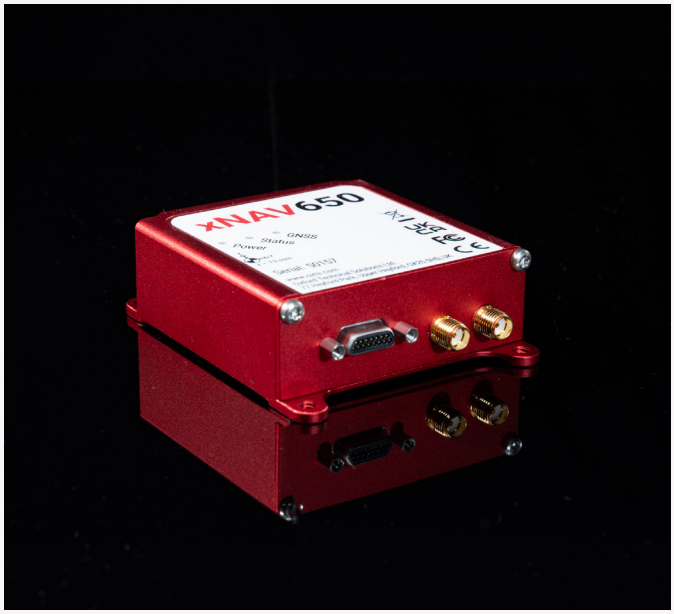
OXTS

xNAV650/ AV200

Compact meets accurate.

Designed to meet the needs of mobile mappers and autonomy customers, the xNAV650 and AV200 offer the same powerful performance, even in harsh GNSS environments.

Weighing only 130g, both are ideal for SWaP-constrained payloads, and the AV200's CAN interface is perfect for anyone working on a project using the CAN bus.



Key Features

+ Reliable, real-time data
+ ITAR-free; no export licence required
+ Three-minute, low-dynamics warm up
+ Tailored to your needs
+ Free-of-charge post-processing tools

Accurate position and vehicle dynamics data is important...but so is size and weight.

Perhaps your project involves a drone, forcing you to work within SWaP constraints. Perhaps you're working on a robotic rover, where you need an accurate navigation system that's lightweight but supports the CAN interface. Perhaps it's something else new and amazing.

Whatever you're creating, if you need a lightweight INS that's commercially scalable, the xNAV650 and AV200 are ideal.

Specification at a glance:

0.02m
horizontal position

0.05°
roll and pitch

0.1 km/h
velocity

0.1°
true heading

0.95 m
position after 60 secs GNSS outage (PP)

Ready for the harshest environments

+ **Quad-constellation GNSS support** (GPS, Galileo, BeiDou and GLONASS) maximises satellite coverage along your route.
+ OXTS **gx/ix tight-coupling** algorithms provide enhanced multipath rejection in urban canyons and faster RTK reacquisition after temporary, complete outages.
+ Advanced vehicle model algorithms filter out erroneous sensor data (such as no rotation on the spot for land-based vehicles).
+ Wheelspeed Odometer interface reduces position drift by aiding the navigation engine with real-time velocity inputs.
+ OXTS LiDAR Inertial Odometry (LIO) software reduces drift by aiding the navigation engine with velocity and angular rate updates from a LiDAR.
+ Embedded NTRIP client and PPP support provide flexibility in your correction source.

Why choose an OXTS INS?

Reliable, real-time data

+ Two survey-grade GNSS receivers and MEMs IMU combine with advanced calibration techniques and unique processing algorithms to deliver uniterrupted position, orientation and dynamics in all environments.
+ Real-time data is output at 100 Hz (250 Hz optional) via ethernet and serial (xNAV650) or CAN (AV200).
+ All data is logged to the 32 GB internal storage.

Low dynamics warm up

+ An OXTS INS gets to specification within three minutes of low dynamics movement - removing the common inconvenience of time and space required for high dynamics manoeuvres before each data collection.

Post-processing tools included

+ Avoid the hassle of selling third-party subscriptions with your product with OXTS software suite, NAVsuite, included free-of-charge.
+ NAVsuite contains the essential applications your customers could need for device configuration, real-time monitoring, post-processing and data visualisation.

ITAR-free: no export licence requirements

+ Ship your INS globally without requiring export liceneses.

Tailored to your needs

+ Make the most of your budget by tailoring your INS to include only the functionality you need.
+ Choose from pre-configured feature bundles, or create your own.
+ Add additional functionality to your INS as your requirements change with remote upgrades.

Options:

+ ISO17025-accredited calibration
  Confirms the IMU in your INS is performing to specification with tracability certification.
+ LiDAR boresight calibration and georeferencing
  Aligns and combines data from the INS and LiDAR into a georeferenced pointcloud.
+ Network DGNSS
  Enables GNSS corrections to be sent and received over ethernet.
+ Precision Time Protocol (PTP)
  Synchronises all devices in your system to a single clock.
+ CAN acquisition (AV200)
  Logs CAN data from other devices, or the vehicle, to the internal 32 GB storage.
+ LiDAR Inertial Odometry (LIO)
  Fuses LiDAR and OXTS INS data to significantly reduce position drift in urban canyons.
+ TerraStar support
  GNSS corrections service that does not rely on communications infrastructure.

Technical specification

Model	xNAV650/AV200
Positioning	GPS L1, L2C (QZSS) GLONASS L1, L2 BeiDou B1, B22 Galileo E1, E5
Single/Dual Antenna?	Both
ITAR-free?	Yes

Performance specification with GNSS [1]

	RTK	Post-Process
X,Y Position (CEP)	0.02 m	0.02 m
DGPS	0.40 m	0.40 m
Altitude (RMS)	0.03 m	0.03 m
Velocity (RMS)	0.1 km/h	0.1 km/h
Roll & Pitch (1σ) [2]	0.05°	0.05°
True Heading (1σ) [3]	0.10°	0.10°

Performance specification without GNSS (RMS)

	Real-time [2]			Post-process [2]		
	10 s	30 s	60 s	10 s	30 s	60 s
X,Y Position (m)	0.29	1.08	2.52	0.06	0.30	0.78
Velocity (m/s)	0.06	0.08	0.10	0.02	0.06	0.07
Roll & Pitch (deg)	0.03	0.04	0.05	0.02	0.03	0.03
True Heading (deg)	0.13	0.27	0.41	0.06	0.15	0.25

Physical characteristics

Dimensions	77 x 63 x 24 mm
Mass	130 g
Input voltage	5 - 60 V dc
Power consumption	4 W
Internal storage	32 GB
Onboard data-logging rate	3 MB/s

OxTS Sensors

Type	Accelerometers	Gyros
Technology	MEMS	MEMS
Range	8 g	480 °/s
Bias stability	0.08 mg	5 °/hr
Scale factor (1σ)	0.08 %	0.3 %
Random walk	0.06 m/s/√hr	0.48 °/ √hr
Axis alignment	< 0.03 °	< 0.05 °

Interfaces

Ethernet	10/100 Base-T
Serial RS232	xNAV650 only
CAN	AV200 only
Digital I/O	Odometer input Event trigger input 1PPS output Camera trigger IMU sync output

Environmental characteristics

Operating temperature	-40° to 70° C
Vibration	10-500 Hz 1.42 g RMS
Shock survival	15 g, 11 ms

[1] Typical values subject to ionospheric/tropospheric conditions, satellite geometry, baseline length and multipath. Requires clear view of the sky and appropriate differential corrections to achieve full specification.
[2] With differential corrections and DMI input
[3] With two-meter antenna separation
[4] At 50 km/h

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www.oxts.com
T: +44 1869 814253
E: sales@oxts.com